Mosquito Classification Method Based on Convolutional Neural Networks

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***Abstract*—Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Etiam lobortis facilisis sem. Nullam nec mi et neque pharetra sollicitudin. Praesent imperdiet mi nec ante. Donec ullamcorper, felis non sodales commodo, lectus velit ultrices augue, a dignissim nibh lectus placerat pede. Vivamus nunc nunc, molestie ut, ultricies vel, semper in, velit. Ut porttitor. Praesent in sapien. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Duis fringilla tristique neque. Sed interdum libero ut metus. Pellentesque placerat. Nam rutrum augue a leo. Morbi sed elit sit amet ante lobortis sollicitudin. Praesent blandit blandit mauris. Praesent lectus tellus, aliquet aliquam, luctus a, egestas a, turpis. Mauris lacinia lorem sit amet ipsum. Nunc quis urna dictum turpis accumsan semper.**

***Keywords*—IEEEtran, journal, LaTeX, paper, template.**

I. Introduction

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A. Related work

Many works was realized with proposed identify and classify bug and mosquitoes, this problem is very old, [1] proposed a predict model for mosquito habitat using remotely sensed data with techniques for aerial photographic identification (remotely sensed).

Recently, we see in [2] that authors was used a SVM and Artificial Neural Network (in separate),for the features extraction was realized with help in the software as ABIS and DAISY. The features analysis is area, perimeter, holes' number, eccentricity and others. [3] provides characteristic descriptions of some insects and statistical analysis of the data. The characteristic is abdomen, thorax, head and others. The image was filtered and they realized segmentation for the classification.

In the literature see propose to method than identify mosquito breeding sites using drone images. The authors [4] analyses and extract features the video generate where is located in map the position to suspected breeding sites and the information send a generated 3D meshes for inspectors.

A new algorithm for segmenting and counting Aedes Aegypti eggs was used in [5]. The papers introduce this propose using k-means clustering algorithm combination with image processing techniques (color systems exploration). For this purpose, the original RGB image is converted into a HSV image, for the extract features in the image.

In the article [6] analysis the mosquito e classify which are Dengue mosquitoes. The papers present a decision tree showing the work to be carried out , where the principal objective is identify female mosquitoes. He was uses a preprocessing (gray scale transformation, blurred image and Equalization Histogram) for analyses. The input image feature is extract and the information is used for classify mosquito using techniques of DIP.

SVM for classification of mosquitoes was used for [7], where the features used in the papers was the color and morphological. The picture segmentation was utilized for separate mosquito and background, where the sobel filter was applied for edge detection. It was report, the authors not considered wings and arms to mosquito because the elements was retired in the segmentation process.

With recent advances in neural network many works with this motif are being developed. In [8], the authors using artificial neural network for automated identification of mosquito, they was used Fourier transform for to classification apply in wing-beat waveform. The authors [9] propose a novel method based on convolution neural networks for mosquito larva classification, the article was used Alexnet architecture for the deep model.

II. Conclusion

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APPENDIX A
PROOF OF THE FIRST ZONKLAR EQUATION

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